

REMARKS

Claims 1-21 remain pending in the application with the present amendments. Claim 21 stands withdrawn as being drawn to a non-elected invention. Applicants appreciate the notification of allowability in the Office Action as to Claims 8-20 of the application. In the Office Action, claims 1-7 were rejected under 35 U.S.C. §103(a), alleged by the Examiner as being obvious over admitted prior art, in combination with U.S. Patent No. 4,994,141 to Harms et al. ("*Harms*"), in view of U.S. Patent No. 5,716,480 to Matsuyama et al. ("*Matsuyama*"). For the reasons set forth below, Applicants respectfully traverse the rejections and submit that claims 1-7 patentably overcome the rejections of the Office Action.

One of the requirements of stating a prima facie case of obviousness is that the alleged combination of references teaches each and every element of the claimed invention. This burden has clearly not been met with respect to the rejected claims 1-7, as follows. First, the Office Action cites to allegedly admitted prior art in Applicants' specification that is simply not present. In paragraph 2, the Office Action states that Applicants' admitted prior art ("AAPA") "teaches a method of relaxing a stress present in a film contacting a base layer by reducing the stress of the film." The Examiner points to the Background of the Invention section of the Specification as providing such teaching. However, there is no such admission in the Specification. Paragraph [0001] of the Background simply contains a statement of the field of the invention, which is required according to U.S. patent prosecution practice to indicate the field of the invention **to which the claimed subject matter is directed**. Accordingly, the field is indicated by the

In the Drawings

A set of replacement sheets numbered 1 through 9 containing Figures 1 through 16 are submitted herewith in replacement of the previously submitted drawings.

statement "The present invention relates to ... a method of altering a stress of a thin film" Thus, paragraph [0001] contains no such admission. Paragraphs [0002] through [0006] do not refer to modifying the stress present in a film; thus they contain no such admission.

Paragraph [0007] states that "Prior art methods have been unsuccessful in providing an effective process to modify stress in compressive and tensile channel regions at the same time." This statement contains no admission that the prior art teaches "a method of relaxing a stress present in a film contacting a base layer by reducing the stress of the film," as alleged by the Examiner. This statement indicates a shortcoming of the prior art in not providing an effective process to modify stress, a problem to be addressed. Paragraph [0007] also states that "it would be desirable to provide a single process for creating a desired compressive strain in the channel region of a PFET without creating the same strain in the channel region of the NFET" again stating a shortcoming of the prior art that needs to be addressed.

Finally, paragraph [0008] indicates the desirability of developing a process to selectively relax a film by reducing the stress present in certain areas of a film. Here again, far from admitting such process to be prior art, these statements indicate a need to be addressed by the invention.

Neither *Harms* nor *Matsuyama* teach or suggest the features recited in the presently pending claims 1-7. *Harms*, while describing a process for annealing a silicon carbon (SiC) layer, resulting in a reduction in stress present in the layer, neither teaches nor suggests doing so by supplying atomic oxygen to the surface of the layer. *Harms* merely indicates that the annealing is performed "in an oxygen atmosphere." It is

commonly known that oxygen does not naturally occur in an atomic state, but rather in a molecular bound state as O₂, in molecules containing two oxygen atoms. In addition, Tables 2 and 3 of *Harms* clearly specify use of an O₂ atmosphere in every single case, as does col. 6, lns. 58-60 of *Harms*. *Harms* does not contain a single reference to use of atomic oxygen for reducing the stress present in a film. The Office Action's statement that atomic oxygen is "inherently supplied to a surface of the film" is not sufficient to bridge the gap between *Harms* and the invention recited in claim 1. Assumptions based on inherency are not sufficient unless clearly grounded in teachings of the cited references. Here, as recited in claim 1, the active agent to reduce the stress of the film is not "oxygen" but atomic oxygen supplied to the surface of the film.

Moreover, in claim 4, it is recited that the atomic oxygen is generated "through excitation by high electron density plasma at a temperature below 700 degrees Celsius." This too is neither taught nor suggested by *Harms*, in combination with *Matsuyama*. By contrast, *Matsuyama* merely describes reducing the stress inside a doped layer by "plasma processing". *Matsuyama* fails to teach the recited element in claim 4 of generating atomic oxygen in the prescribed manner for the purpose of supplying the atomic oxygen to the surface of the film to oxidize the film.

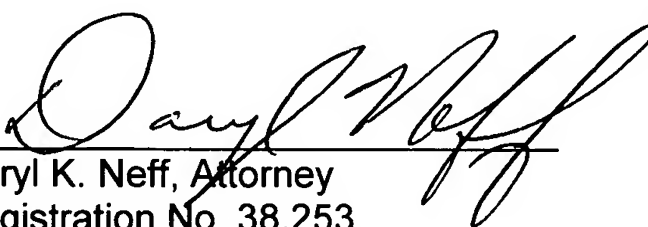
In addition, as indicated above, Applicants' specification fails to contain the admissions alleged by the Examiner as teaching the selective reduction of stress.

Accordingly, Applicants submit that the presently pending claims are patentably distinguished over the art cited in the Office Action, and that the application is in immediate condition for allowance. Applicants respectfully request reconsideration and allowance of all of the claims at this time. If, however, the Examiner does not believe that such action can be taken at this time, the Examiner is requested to telephone Applicants' attorney at the number indicated below to discuss or clarify any matters relating to the application and the present amendment.

Respectfully submitted,

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